

## BM811a, BM812a, BM815a, BM817a GENERAL SPECIFICATION

**Display:** 3-4/5 digits 5000 counts LCD display

**Update Rate:**

Digital Data 5 per second nominal;

52 Segments Bar-graph 60 per second nominal

**AC Sensing:** True RMS for BM812a & BM817a, and average sensing for BM811a & BM815a

**Operating Temperature:** 0°C to 45°C

**Relative Humidity:** Maximum relative humidity 80% for temperature up to 31°C decreasing linearly to 50% relative humidity at 45°C

**Storage Temperature:** -20°C to 60°C, 80% R.H. (with battery removed)

**Temperature Coefficient:** nominal 0.15 x (specified accuracy) / °C @ (0°C ~ 18°C or 28°C ~ 45°C), or otherwise specified

**Pollution degree:** 2

**Altitude:** Operating below 2000m

**Overload Protections:**

*Standard-version BM810a series:*

µA & mA : 1A/600V, IR 10kA or better, F fuse;

A : 10A/600V, IR 100kA or better, F fuse

V : 1050Vrms, 1450Vpeak

mV, Ω, & Others : 600VDC/VAC rms

*CF-version BM810CFa series:*

µA & mA : 0.44A/1000V, IR 10kA or better, F fuse

A : 11A/1000V, IR 20kA or better, F fuse

V, mV, Ω, & Others : 1050Vrms / 1450Vpeak

**Safety:** Double insulation per IEC61010-1 2nd Ed., EN61010-1 2nd Ed., UL61010-1 2nd Ed. & CAN/CSA C22.2 No. 61010.1-0.92 to Category III 1000V AC & DC and Category IV 600V AC & DC  
BM810a Terminals (to COM) Measurement Category:

V : Category III 1000V AC & DC and Category IV 600V AC & DC

A / mAµA : Category III and Category IV 600 Vac and 300 Vdc.

BM810CFa Terminals (to COM) Measurement Category:

V / A / mAµA : Category III 1000V AC & DC and Category IV 600V AC & DC

**E.M.C.:** Meets EN61326-1:2006 (EN55022, EN61000-3-2, EN61000-3-3, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-8, EN61000-4-11)

In an RF field of 3V/m

Capacitance function is not specified

Other function ranges: Total Accuracy = Specified

Accuracy + 100 digits

Performance above 3V/m is not specified

**Transient protection:** 8kV (1.2/50µs surge)

**Power Supply:** Single standard 9V battery

NEDA1604, JIS006P or IEC6F22

**Power Consumption:** 4.3 mA typical

**Low Battery:** Below approx. 7V

**APO Timing:** Idle for 17 minutes

**APO Consumption:** 50µA typical

**Dimension:** L186mm X W87mm X H35.5mm;

L198mm X W97mm X H55mm with holster

**Weight:** 340 gm; 430 gm with holster

**Accessories:** Test leads (pair); Holster; Battery (installed); User's manual; Bkp60 banana plug K type thermocouple (BM815a & BM817a only)

**Optional Accessories:** BRUA-85Xa PC interface kit (BC-85Xa RS232 optical adapter cable + Bs8151X software CD + BUA-2303 USB-to-Serial adaptor); Bkb32 banana plugs to K-type socket plug adapter (BM815a & BM817a only)

**Special Features:**

*All models:*

Data-Hold; Range-Hold; Backlighted Display;

Optional PC-interface capabilities

*BM815a & BM817a only:*

50ms Record MAX-MIN readings at fast 20/second measurement mode; 0.8ms Crest (Instantaneous Peak-Hold) MAX-MIN readings; Relative-Zero offset mode; Zoom 5x analog pointer at 60/s

## ELECTRICAL SPECIFICATIONS

Accuracy is +/-(% reading digits + number of least significant digits) or otherwise specified, at 23°C +/- 5°C & less than 75% R.H.

True RMS models BM812a & BM817a ACV & ACA accuracies are specified from 5% to 100% of range or otherwise specified. Maximum Crest Factor <3:1 at full scale & <6:1 at half scale, and with frequency spectrums, besides fundamentals, fall within the meter specified AC bandwidth for non-sinusoidal waveforms.

### DC Voltage

RANGE	Accuracy
50.00 mV	0.12% + 2d
500.0 mV	0.06% + 2d
5.000V, 50.00V, 500.0V, 1000V	0.08% + 2d

NMR : >60dB @ 50/60Hz

CMRR : >120dB @ DC, 50/60Hz, Rs=1kΩ

Input Impedance : 10MΩ, 16pF nominal (44pF nominal for 50mV & 500mV ranges)

### AC Voltage

RANGE	Accuracy
<b>50Hz ~ 60Hz</b>	
50.00mV, 500.0mV, 5.000V, 50.00V, 500.0V, 1000V	0.5% + 3d
<b>40Hz ~ 500Hz</b>	
50.00mV, 500.0mV	0.8% + 3d
5.000V, 50.00V, 500.0V	1.0% + 4d
1000V	1.2% + 4d
<b>Up to 20kHz</b>	
50.00mV, 500.0mV	0.5dB*
5.000V, 50.00V, 500.0V	3dB*
1000V	Unspec'd

\*Specified from 30% to 100% of range

CMRR : >60dB @ DC to 60Hz, Rs=1kΩ

Input Impedance : 10MΩ, 16pF nominal (44pF nominal for 50mV & 500mV ranges)

### Crest mode for V & A functions

(BM815a & BM817a only)

Accuracy: Specified accuracy ±150 digits for changes > 0.8 ms in duration

### Capacitance

RANGE	Accuracy*
50.00nF	0.8% + 3d
500.0nF	0.8% + 3d
5.000µF	1.5% + 3d
50.00µF	2.5% + 3d
500.0µF	3.5% + 5d
9999µF	5.0% + 5d

\*Accuracies with film capacitor or better

### DC Current

RANGE	Accuracy	Burden Voltage
500.0µA	0.2%+4d	0.15mV/µA
5000µA		0.15mV/µA
50.00mA		3.3mV/mA
500.0mA		3.3mV/mA
5.000A		45mV/A
10.00A*		45mV/A

\*10A continuous, >10A to 15A (to 20A for CF-version) for 30 second max with 5 minutes cool down interval

### AC Current

RANGE	Accuracy	Burden Voltage
<b>50Hz ~ 60Hz</b>		
500.0µA	0.6%+3d	0.15mV/µA
5000µA		0.15mV/µA
50.00mA		3.3mV/mA
500.0mA		3.3mV/mA
5.000A		45mV/A
10.00A*		45mV/A
<b>40Hz ~ 1kHz</b>		
500.0µA	0.8%+4d	0.15mV/µA
5000µA	0.8%+4d	0.15mV/µA
50.00mA	0.8%+4d	3.3mV/mA
500.0mA	1.0%+4d	3.3mV/mA
5.000A	0.8%+4d	45mV/A
10.00A*	0.8%+4d	45mV/A

\*10A continuous, >10A to 15A (to 20A for CF-version) for 30 second max with 5 minutes cool down interval

### Temperature (BM815a & BM817a only)

RANGE	Accuracy*
-50 °C TO 1000 °C	0.3% + 3d
-58 °F TO 1832 °F	0.3% + 5d

\*Thermocouple range & accuracy not included

### Audible Continuity Tester

Audible threshold : between 20Ω and 200Ω. Fast response time < 100µs

### Ohms

RANGE	Accuracy
50.00Ω	0.3% + 6d
500.0Ω	0.1% + 3d
5.000kΩ, 50.00kΩ, 500.0kΩ	0.1% + 2d
5.000MΩ	0.4% + 3d
50.00MΩ	2.0% + 5d

Open Circuit Voltage : < 1.3VDC (< 3VDC for 50Ω & 500Ω ranges)

### Frequency

Function	Sensitivity (Sine RMS)	Range
mV	300mV	10Hz - 125kHz
5V	2V	10Hz - 125kHz
50V	20V	10Hz - 20kHz
500V	80V	10Hz - 1kHz
1000V	300V	10Hz - 1kHz
Ω, Cx, diode	300mV	10Hz - 125kHz
µA, mA, A	10% F.S.	10Hz - 125kHz

Accuracy: 0.01% + 2d

### Diode Tester

Range	Accuracy	Test Current (Typical)	Open Circuit Voltage
2.000V	1%+1d	0.4mA	< 3.5 VDC



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